

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 October 2002 (24.10.2002)

PCT

(10) International Publication Number
WO 02/083047 A1

(51) International Patent Classification⁷: A61F 13/15

STRAND, Lina; Silverkällagatan 11, S-414 72 Göteborg (SE).

(21) International Application Number: PCT/SE02/00699

(22) International Filing Date: 10 April 2002 (10.04.2002)

(74) Agents: ALBIHNS GÖTEBORG AB et al.; Box 142, S-401 22 Göteborg (SE).

(25) Filing Language: Swedish

(26) Publication Language: English

(30) Priority Data:
0101294-7 11 April 2001 (11.04.2001) SE

(71) Applicant: SCA HYGIENE PRODUCTS AB [SE/SE];
S-405 03 Göteborg (SE).

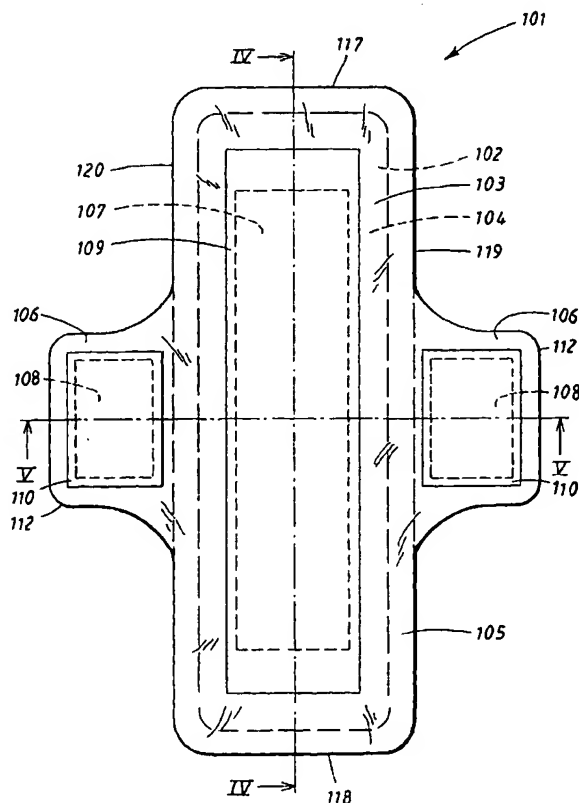
(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

(72) Inventors: HANSSON, Roy; Ålegårdsgatan 12, S-431 50 Mölndal (SE). ELFSBERG, Camilla; Stabbegatan 101, S-416 80 Göteborg (SE). PERSSON, Charlotte; Torild Wulffsgatan 47, S-413 19 Göteborg (SE). BJÖRK-LUND, Camilla; Stråkvägen 7, S-435 44 Mölnlycke (SE).

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent

[Continued on next page]

(54) Title: ABSORBENT PRODUCT WITH ENHANCED INCONSPICUOUSNESS



(57) Abstract: Absorbent product (101) such as a sanitary towel, a panty liner or an incontinence pad, which product has two transverse end edges (117, 118), two longitudinal side edges (119, 120), a liquid-permeable surface layer (102), a liquidtight backing layer (103) and an absorbent core (104) arranged between these layers (102, 103), the product having side flaps (106) arranged at the longitudinal side edges (119, 120) on both sides of the absorbent core (104), which side flaps (106) are of such shape and size that, during use of the product, they can be folded around the leg edges in the crotch portion on a pair of briefs, the side flaps (106) exhibiting a gloss below (25) %.

WO 02/083047 A1

BEST AVAILABLE COPY



(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*

Title

Absorbent product with enhanced inconspicuousness

Technical field

- 5 Absorbent product such as a sanitary towel, a panty liner or an incontinence pad, which product has two transverse end edges, two longitudinal side edges, a liquid-permeable surface layer, a liquidtight backing layer and an absorbent core arranged between these layers, the product having side flaps arranged at the longitudinal side edges on both sides of the absorbent core,
- 10 which side flaps are of such shape and size that, during use of the product, they can be folded around the leg edges in the crotch portion on a pair of briefs.

Background art

- 15 Modern conventional absorbent articles either have side flaps or do not. The purpose of the side flaps is to be folded around the edges of the briefs in the crotch portion and in this way help to ensure good fastening of the article in the briefs so that the article does not lie askew. An example of a document which describes the importance of side flaps for the fastening of an
- 20 absorbent article is EP 0 359 501. A further reason for providing an absorbent article with side flaps is that the risk of leakage occurring is reduced. Leakage often arises in articles without side flaps when the edges of the briefs in the crotch area become folded in over the top side of the article or when the article has ended up askew in the briefs. This usually
- 25 happens when the article is narrower than the width of the briefs. Leakage can also occur when the bodily fluid cannot be absorbed in time by the central portion of the article but runs out and over the side edges of the article where the bodily discharge comes into contact with the briefs. An article with side flaps ensures the positioning of the article in the briefs and
- 30 reduces the occurrence of leakage. In order to reduce the leakage along the sides of the article, the article is advantageously provided with side flaps

which are as long as possible along the longitudinal side edges of the article. Examples of articles with long side flaps are described in, for example, WO 98/25564 and EP 0 928 179. However, many wearers feel an article with conventional side flaps is insufficiently inconspicuous, because
5 the side flaps are visible on the outside of the briefs. This is of course more marked, the larger the side flaps are. An article which does not have side flaps is in this respect much more discreet as no side flaps have been folded around the briefs in the crotch area. However, leakproofness is inferior in such an article. Articles without side flaps are therefore most often
10 recommended for use when smaller flows of liquid are to be received by the article. Manufacturers of sanitary articles have traditionally used material which has a whitish colour in order to give the consumer a feeling of freshness with the article and in order to be suitable for white briefs, which has been the most common colour of briefs on the market. The market has
15 changed now, and there is a wide variety of briefs with both different colours and different patterns, which means that white side flaps or side flaps of a colour different from that of the briefs are clearly visible on the outside of the briefs. Many people take part in sports which require a change of clothes in an environment which is to a greater or lesser extent public. In this
20 connection, it is virtually impossible to conceal the use of a sanitary protection means with side flaps because these are visible on the outside of the briefs. The same problem arises in the case of activities such as swimming and sunbathing. There is also a requirement among some users of sanitary articles to be able to conceal the use of these in their home
25 environment as well.

There have been attempts to solve the above problems by making the side flaps transparent. EP 1 138 293 discloses an absorbent article that shows transparent areas. However, transparency is not the same as non-visibility.
30 The side flaps, even if they are made in a transparent material, can shine

and in that way be visible. In addition, it is so that it is not a necessity for the side flaps to be transparent for them to be experienced as invisible.

Thus, there still is a need for an improved absorbent article with side flaps
5 and enhanced discretion.

Disclosure of invention

By means of the present invention, a product of the type referred to in the
10 introduction has been produced, which product essentially eliminates the problems associated with previously known such products.

A product made according to the invention is principally characterized in that the side flaps exhibits a gloss below 25 %. By making the side flaps exhibit
15 a gloss below 25 %, enhanced inconspicuousness is achieved for the wearer on occasions when the wearer is seen wearing only patterned and/or coloured briefs, or sun clothes, without forgoing the leakproofness of the article.

20 Preferably, the side flaps exhibit a gloss between 3 and 10 %. Most preferred is a gloss of 6 %. Gloss is measured according to ASTM 2457-97. What is measured is how the material reflects light. The side flaps are experienced as being invisible when the gloss of the material in the side flaps is below 25 %, provided that the material is transparent enough.
25 Perforating the side flaps would affect the gloss so that it is decreased. However, it is difficult to measure gloss using the above method on a material that has a lot of holes. A material with a nominal value of gloss that is higher than acceptable, can be chosen if it is later perforated. A material with a higher gloss than acceptable can also be chosen if it is later
30 embossed. The gloss of an embossed material is, however, not difficult to measure.

A higher gloss of the side flaps than 25 % would be acceptable, or even desirable, in cases where very glossy briefs are used, such as specific types of polyester or silk. However, this type of underwear is a minority of the underwear existing and that area is not the subject for this invention.

5

According to a preferred embodiment of the invention, the side flaps exhibits a transmittance of at least 5 %, preferably at least 15 %. The transmittance is measured according to ASTM D 1746-97, on a non-perforated piece of material. Depending on the type of underwear the article is arranged in and
10 depending on the nature of the material used in the side flaps, it is possible that side flaps exhibiting a gloss below 25 % can be experienced as invisible even though the transmittance is not above 5 %.

According to a preferred embodiment of the invention, the side flaps are
15 constituted by the liquidtight-backing layer, which extends beyond the longitudinal side edges of the product. In this connection, a liquidtight transparent backing layer can be treated in the area of the absorbent core so that the surface within this area has greater opacity, that is to say is less transparent. The liquidtight transparent material can, for example, be
20 coloured, provided with a colour print or stamped so that the material becomes less transparent. Such treatment may be desirable given that some users find it offputting when it is possible to see into the core of the absorbent article. This problem is especially marked when the absorbed bodily liquid is reddish menstrual fluid.

25

According to another embodiment, the article has been provided with an opaque layer on that side of the absorbent core which faces away from the wearer during use. This layer can be constituted by an opaque fastening means in the form of adhesive fastening glue, a mechanical fastening means
30 or a separate layer in the form of an opaque non-woven material, plastic layer, laminate or the like. According to a fourth embodiment, the side flaps

consist of a separate material layer or laminate which is positioned and attached across the article on the inside or the outside of the liquidtight backing layer. According to a further embodiment, the side flaps consist of at least two separate material layers which are attached to the longitudinal side edges of the article. It has also been found to be advantageous if the transparent side flaps also have an adhesive fastening means adjacent to the outer contour line of the side flap in order to bring about good contact with the briefs so that the side flap does not hang down from the briefs and thus become conspicuous.

10

Brief description of figures

The invention will be described in greater detail below with reference to the figures which are shown in the accompanying drawings.

- 15 Figure 1 shows a wearer from the front wearing a conventional sanitary towel provided with side flaps inside a pair of briefs;
- Figure 2 shows a wearer from the rear wearing a conventional sanitary towel provided with side flaps inside a pair of briefs;
- 20 Figure 3 shows a sanitary towel, seen from the side which is to face the briefs during use;
- Figure 4 shows a section along the line IV-IV through the sanitary towel in Figure 3;
- 25 Figure 5 shows a section along the line V-V through the towel in Figure 3;
- Figure 6 shows a sanitary towel according to another embodiment of the invention, seen from the side which is to face the briefs during use;
- 30 Figure 7 shows a section along the line VII-VII through the sanitary towel in Figure 6;

- Figure 8 shows a section along the line VIII-VIII through the sanitary towel in Figure 6;
- Figure 9 shows a sanitary towel according to another embodiment of the invention, seen from the side which is to face the briefs during use;
- 5 Figure 10 shows a section along the line X-X through the sanitary towel in Figure 9;
- Figure 11 shows a section along the line XI-XI through the sanitary towel in Figure 9;
- 10 Figure 12 shows a sanitary towel according to a further embodiment of the invention, seen from the side which is to face the briefs during use;
- Figure 13 shows a section along the line XIII-XIII through the sanitary towel in Figure 12;
- 15 Figure 14 shows a section along the line XIV-XIV through the sanitary towel in Figure 12;
- Figures 15-18 show proposed designs of the fastening means on the side flaps, and
- Figure 19 shows a sanitary towel with an hourglass-shaped absorbent core, seen from the side which is to face the wearer during use.
- 20

Description of measurements of gloss

According to the invention, the material for the side flaps shall exhibit a gloss below at least 25 %. Below that value, the material does not exhibit a disturbing gloss that would make the material visible even if it were completely transparent. The material is experienced as invisible. The gloss of a material is measured, according to the invention, by measuring the regular reflection of light. The flux of the regular reflection is divided by the flux of incident light and the result is measured in % as regular reflection. The method of measurement used here is "Standard Test Method for

25

30

Specular Gloss of Plastic Films and Solid Plastics", ASTM D 2457-97. The angle (gloss angle) that is described under Section 1 "Scope" in the method can be chosen to be 20, 45 or 60°. In the measurements according to the invention the angle was chosen to be 60°. The measurements were made on
5 non-perforated materials.

Description of measurements of transparency

As earlier described, it is important that the side flaps are to a certain extent
10 transparent for them to be experienced as invisible. However, as described above, very high transparency is often associated with high gloss. The transparency necessary for the invention is measured according to the method " Standard Test Method for Transparency of Plastic Sheeting", ASTM D 1746-97. According to this method, regular transmittance of light is
15 measured. Regular transmittance is the result of the flux of regularly transmitted light divided by the flux of incident light. Regular transmittance is given in %. The measurements were made on non-perforated materials.

Mode(s) for carrying out the invention

20 In the examples, absorbent products in the form of sanitary towels are described, but the invention can of course be applied to panty liners or incontinence pads. Figures 1 and 2 show a wearer 115 seen from the front and, respectively, from the rear, wearing a conventional sanitary towel 2002 inside a pair of briefs 2016. The sanitary towel has been designed with side
25 flaps 2003 which have been folded around the edges of the briefs. The side flaps 2003 of the sanitary towel are clearly visible on the outside of a pair of briefs 2016 when these have a colour and/or pattern different from that of the side flaps 2003.

30 Figures 3-5 show a sanitary towel 101 seen from the side which is intended to face the underwear of the wearer during use, which sanitary towel 101

has two transverse end edges 117, 118 and two longitudinal side edges 119, 120. Figure 3 shows a sanitary towel, seen from the side which is to face the briefs during use. Figures 4 and 5 show sections through the sanitary towel in Figure 3. A liquid-permeable surface layer 102 is arranged on that side of the sanitary towel which is intended to face the wearer. The liquid-permeable surface layer 102 suitably consists of a soft, skin-friendly material. Examples of suitable liquid-permeable materials are various types of non-woven fabrics. Another example of a liquid-permeable material is a layer of continuously longitudinal fibres. Other possible liquid-permeable materials are perforated plastic films, net, knitted or woven textiles and combinations and laminates of the material types listed.

The sanitary towel 101 also comprises a liquidtight backing layer 103 arranged on that side of the sanitary towel which is to face away from the wearer. In the illustrative embodiment shown, a thin transparent flexible plastic film is used as the liquidtight-backing layer 103. Examples of suitable films are natural polypropylene and polyethylene films or laminates of these. The word natural means films without added organic or inorganic pigments, for example titanium dioxide.

Positioned between the liquid-permeable surface layer 102 and the liquidtight backing layer 103 is an absorbent core 104 which can comprise one or more material layers. A suitable material for the absorbent core 104 is, for example, cellulose pulp. This may be in the form of rolls, bales or sheets which are dry-defibred and converted in fluffed form into a pulp mat, with what are known as superabsorbents, which are polymers with the capacity to absorb several times their own weight of water or bodily fluid, being mixed in if so desired. Examples of other usable materials are various types of regenerated cellulose, for example viscose fibres as described in SE 9903070-2. Natural fibres such as cotton fibres, peat or the like can also

be used. It is of course also possible to use absorbent and/or hydrophilic synthetic fibres or mixtures of natural fibres and synthetic fibres.

5 The two layers, the liquid-permeable surface layer 102 and the liquidtight backing layer 103, are interconnected and form a projecting edge connection 105 around the longitudinal side edges 119, 120 and the transverse end edges 117, 118 of the sanitary towel. The connection can be made by any known technique suitable for the purpose, such as gluing, welding or sewing.

10 The sanitary towel also has two transparent side flaps 106 arranged on either side of the absorbent core 104, the side flaps 106 projecting in the transverse direction from each longitudinal side edge 119, 120. The side flaps 106 are of such shape and size that, during use, they can be folded around the leg openings of the briefs. In this embodiment, the side flaps 106
15 are constituted by the liquidtight backing layer 103. A fastening means 107 is arranged on that surface of the liquidtight backing layer 103 facing away from the wearer, in the area of the absorbent core 104. In this embodiment, the fastening means 107 is an adhesive means which is protected by a removable protective layer 109. The protective layer 109 is intended to
20 protect the adhesive fastening means 107 from dirt and dust and to prevent the glue from adhering in an undesirable manner to other surfaces or to itself until the sanitary towel is to be used. As an alternative to the adhesive fastening means 107, use can be made of a means which has mechanical adhesion or high friction properties, such as touch and close material or
25 foamed material. When a touch and close material or a foamed material is used as the fastening means, the protective layer 109 can be omitted. The projecting side flaps 106 have also been provided with fastening means 108 on the surface facing away from the wearer in order to ensure that the side flaps 106 make good contact against the outside of the briefs during use.
30 The fastening means 108 is suitably constituted by a transparent adhesive fastening glue which is protected by removable protective layers 110.

According to another embodiment (not shown in the figures), the sanitary towel has a liquidtight backing layer 103 which has been treated so that it is opaque in the area of the absorbent core 104 in order to reduce the visibility of the absorbent core. Increased opacity can be brought about by the plastic film being coloured by, for example, titanium dioxide, or by the surface being finished mechanically so that the surface reflects light differently, its opacity then being increased. Another way of providing protection against the absorbent core 104 being visible through the liquidtight backing layer 103 of the sanitary towel is by arranging the fastening means 107 as a covering coating and by colouring it so that a layer with an opaque effect is obtained.

Figures 6-8 show a sanitary towel 601 of fundamentally the same construction as the sanitary towel in Figures 3-5. The numbering of the different parts of the sanitary towel in Figures 6-8 is therefore by analogy with that used in the description of the sanitary towel in Figures 3-5. However, the sanitary towel 601 shown in Figure 6 does differ in one respect from the sanitary towel 101 described previously.

The sanitary towel 601 has protection 611 against the absorbent core 604 being visible brought about by virtue of an opaque material layer 611 having been positioned in the area of the absorbent core 604 on that side of the liquidtight backing layer 603 which faces away from the wearer. The opaque material layer 611 can consist of, for example, an opaque non-woven material, cellulose layer, plastic material or laminate of said materials. It is of course also possible to position the opaque material layer 611 on the inside of the liquidtight backing layer 603, between the absorbent core 604 and the liquidtight backing layer 603. The opaque material layer 611 preferably consists of a hydrophobic material, for example a coloured film, when the opaque material layer 611 is positioned between the absorbent core 604 and the liquidtight backing layer 603.

Figures 9-11 show another variant of the invention. Like the sanitary towel shown in Figures 3-5, the sanitary towel 901 in Figures 9-11 is constructed in a conventional manner, with an absorbent core 904 enclosed between a liquid-permeable surface layer 902 and a liquidtight backing layer 903. The two layers, the liquid-permeable surface layer 902 and the liquidtight backing layer 903, are interconnected and form a projecting edge connection 905 around the longitudinal side edges 919, 920 and the transverse end edges 917, 918 of the sanitary towel.

10

A fastening means 907 is also arranged on that surface of the liquidtight backing layer 903 facing away from the wearer, in the area of the absorbent core 904. The fastening means 907 is protected by a removable protective layer 909. The side flaps 906 are constituted by a transparent material layer 914 which has been positioned across the sanitary towel 901 on that side of the liquidtight backing layer 903 which faces away from the wearer. The material layer 914 has been positioned in such a manner that it projects beyond the longitudinal side edges 919, 920 of the sanitary towel and forms the side flaps 906. The separate transparent material layer 914 consists of, for example, transparent polyethylene film, polypropylene film or a laminate of these. For increased breathability of the product, it is an advantage if the material layer is made of a breathable material, for example a microporous, air-permeable film. This can be made of various materials, for example polyethylene or polypropylene. The advantage of this embodiment is that it affords a greater range of options for selecting from a large number of materials for the liquidtight backing layer 903 as the choice does not depend on the choice for the material layer 914. For example, the liquidtight backing layer 903 can be a simple opaque non-woven material, and the material layer 914 can be a transparent, liquidtight but breathable material. This produces a sanitary towel with increased comfort because a maximum surface area with air-permeability is obtained, at the same time as a

30

sufficiently liquid-impermeable surface underneath the absorbent core 904 is obtained in the area of the material layer 914 in the crotch area. The connection between the transparent material layer 914 and the liquidtight backing layer 903 can be made by any known technique suitable for the purpose, such as gluing, welding or sewing.

The sanitary towel 1201 shown in Figures 12-15 is on the whole constructed in the same manner as the sanitary towel in Figures 9-11. The major difference is that the side flaps 1206 consist of two separate transparent material layers 1213 which are attached to the liquidtight backing layer 1203. These separate transparent material layers 1213 are advantageously attached to the liquidtight backing layer 1203 at the same time as the connection 1205 is made between the liquidtight backing layer 1203 and the liquid-permeable surface layer 1202 along the longitudinal side edges 1219, 1220 of the article.

Figures 15-18 show examples of the distribution of the transparent adhesive fastening glue 1508 on the side flap 1506. It has been found that it is significant that the transparent side flap 1506 has adhesive fastening glue 1508 which extends adjacent to the outer contour line 1512 of the side flap 1506 in order to bring about good contact between the outer contour line 1512 of the side flap 1506 and the briefs so that the side flap 1506 is prevented from hanging down or being bent out from the outside of the briefs and thus becoming conspicuous. The glue can extend so far that it coincides with the outer contour line 1512 of the side flap 1506. In order that good contact of the side flap 1506 against the briefs is obtained, the extent of the glue should not be less than 5 mm from the outer contour line 1512 of the side flap 1506.

A protective layer 1510 is positioned over the transparent adhesive fastening glue 1508. This protective layer 1510 has release properties on at least the

side which faces the adhesive fastening glue 1508, in order to protect the latter against dirt and dust and to prevent the glue from adhering in an undesirable manner to other surfaces or to itself until the sanitary towel is to be used.

5

Figures 15 and 16 illustrate a side flap 1506 which has been coated with an adhesive fastening glue 1508 over the entire surface of the side flap on the side which is intended to be attached to the outside of the briefs during use. Figures 17 and 18 show a side flap 1706 which has been coated with an adhesive fastening glue 1708 only close to the outer contour line 1712 of the side flap in the form of spots. The adhesive fastening glue 1508 can of course be applied in different patterns and extents as long as the conditions mentioned above for good contact of the side flap 1706 against the briefs are satisfied.

15

Figure 19 shows a sanitary towel 1901 seen from the side which is to face the wearer during use. The sanitary towel 1901 is of fundamentally the same construction as the sanitary towels 301, 601, 901 and 1201 illustrated in previous figures. The numbering of the different parts of the sanitary towel in Figure 19 is therefore by analogy with that used in the description of the sanitary towels 301, 601, 901 and 1201 in the previous figures. However, the sanitary towel 1901 shown in Figure 19 differs in two respects from the sanitary towels 301, 601, 901 and 1201 described previously.

25 The sanitary towel 1901 shows an example of a sanitary towel with an hourglass-shaped absorbent core 1904. By giving the absorbent core 1904 an hourglass shape, the sanitary towel can be afforded better contact against the thighs of the wearer and thus improved comfort during use of the sanitary towel 1901. The sanitary towel 1901 has also been designed with a liquid-permeable surface layer 1902 which has a shape which follows the contour of the longitudinal edges 1921, 1922 of the absorbent core at least

30

in the area of the crotch portion 1923. By designing the liquid-permeable surface layer 1902 so that it follows the longitudinal edges 1921, 1922 of the absorbent core, an aesthetically improved sanitary towel is obtained.

- 5 The invention is not to be considered as being limited by the illustrative embodiments described here. All possible combinations and variants of the illustrative embodiments described are also intended to be included within the scope of the invention.

Claims

1. Absorbent product (101) such as a sanitary towel, a panty liner or an incontinence pad, which product has two transverse end edges (117, 118), two longitudinal side edges (119, 120), a liquid-permeable surface layer (102), a liquidtight backing layer (103) and an absorbent core (104) arranged between these layers (102, 103), the product having side flaps (106) arranged at the longitudinal side edges (119, 120) on both sides of the absorbent core (104), which side flaps (106) are of such shape and size that, during use of the product, they can be folded around the leg edges in the crotch portion on a pair of briefs, characterized in that the side flaps (106) exhibit a gloss below 25 %.
2. Absorbent product according to Claim 1, characterized in that the side flaps (106) exhibit a gloss between 3 and 10 %.
3. Absorbent product according to Claim 1 or 2, characterized in that the side flaps (106) exhibit a regular transmittance above 5 %.
4. Absorbent product according to any of the preceding claims, characterized in that the side flaps (106) are formed by the liquidtight backing layer (103).
5. Absorbent product according to Claim 4, characterized in that the liquidtight backing layer (103) consists of, for example, a transparent breathable microporous film.
6. Absorbent product according to Claim 4 or 5, characterized in that the liquidtight backing layer (103) has been treated in the area of the

absorbent core (104) so that this area has a surface which is not transparent.

- 5 7. Absorbent product according to Claim 1, characterized in that the product is provided with an opaque layer (111) attached to the liquidtight backing layer (103).
8. Absorbent product according to Claim 7, characterized in that the opaque layer (111) is, for example, an opaque non-woven layer,
10 plastic layer, cellulose layer or laminate.
9. Absorbent product according to Claim 7, characterized in that the opaque layer (111) is a non-transparent fastening means.
- 15 10. Absorbent product according to Claim 9, characterized in that the opaque layer (111) is a coloured fastening glue.
11. Absorbent product according to Claim 1, characterized in that the side
20 flaps (106) comprise a separate material layer (114).
12. Absorbent product according to Claim 11, characterized in that the separate material layer (114) is attached to the liquidtight backing layer (103).
- 25 13. Absorbent product according to Claim 1, characterized in that the side flaps (106) consist of two or more separate material layers (113) which are attached to the longitudinal side edges (119, 120) of the product.
- 30 14. Absorbent product according to any of the preceding claims, characterized in that the side flaps (106) have a transparent fastening

means (108) which follows the outer contour line (112) of the side flap on that side of the side flap (106) which faces the briefs during use.

- 5 15. Absorbent product according to any of the preceding claims, characterized in that the liquid-permeable surface layer (1902) follows the contour of the absorbent core (1904) at least in the area of the crotch portion (1923) of the article.

1 / 11

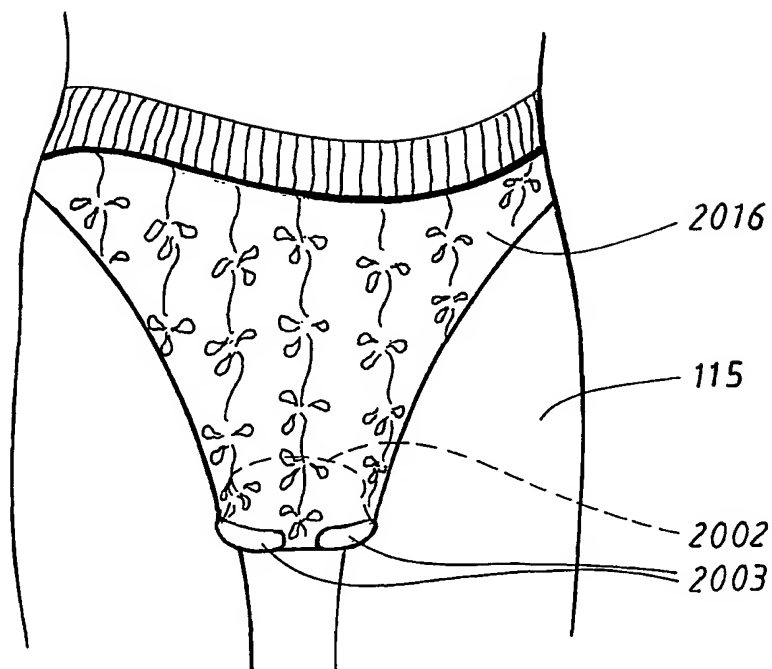


FIG. 1

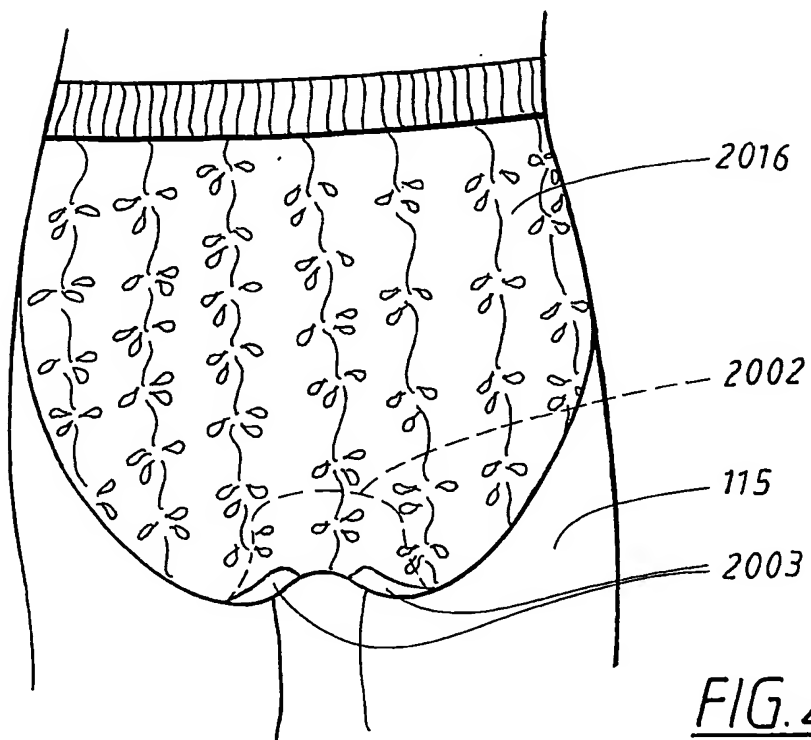


FIG. 2

2/11

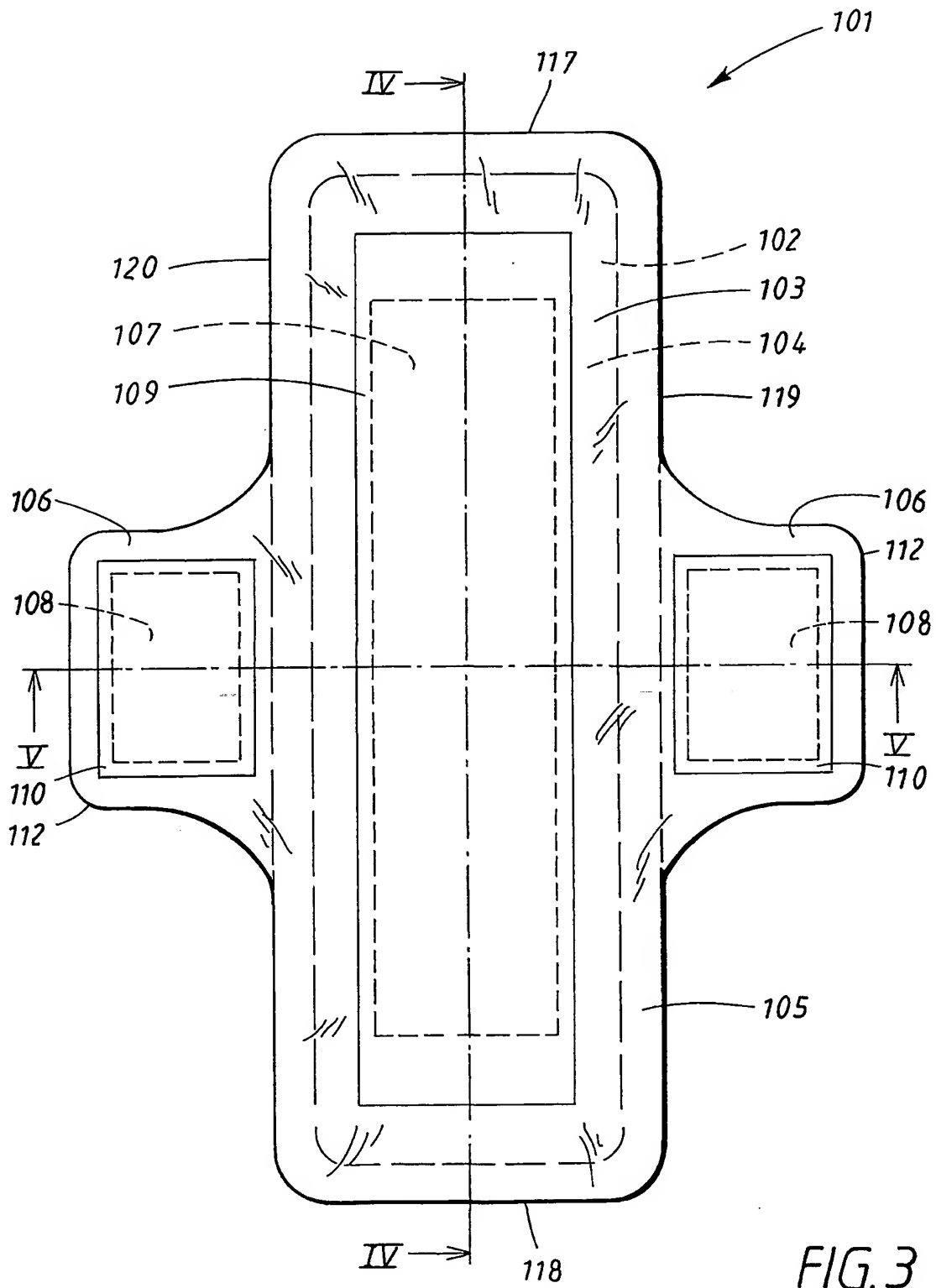


FIG. 3

3/11

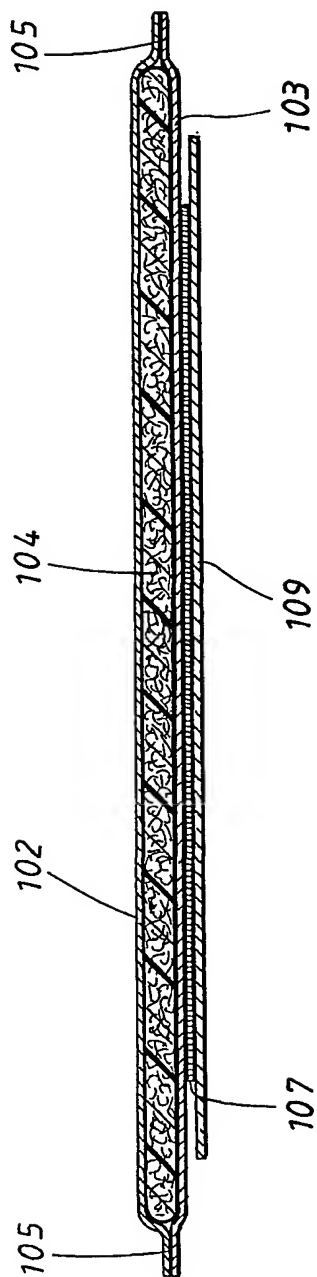


FIG. 4

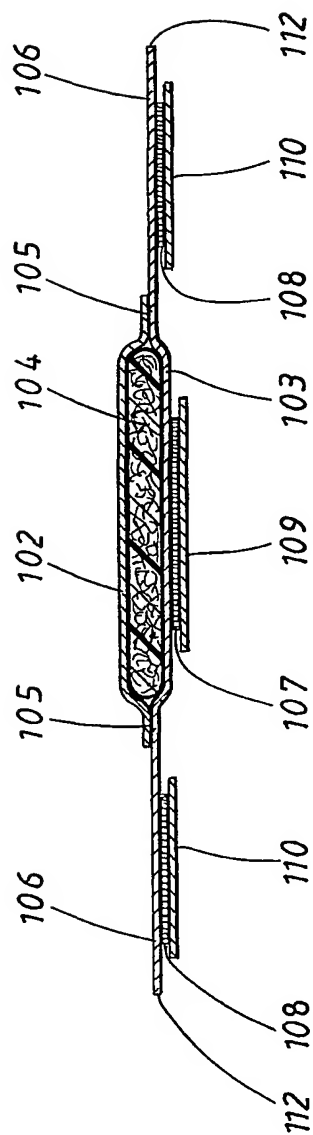


FIG. 5

4/11

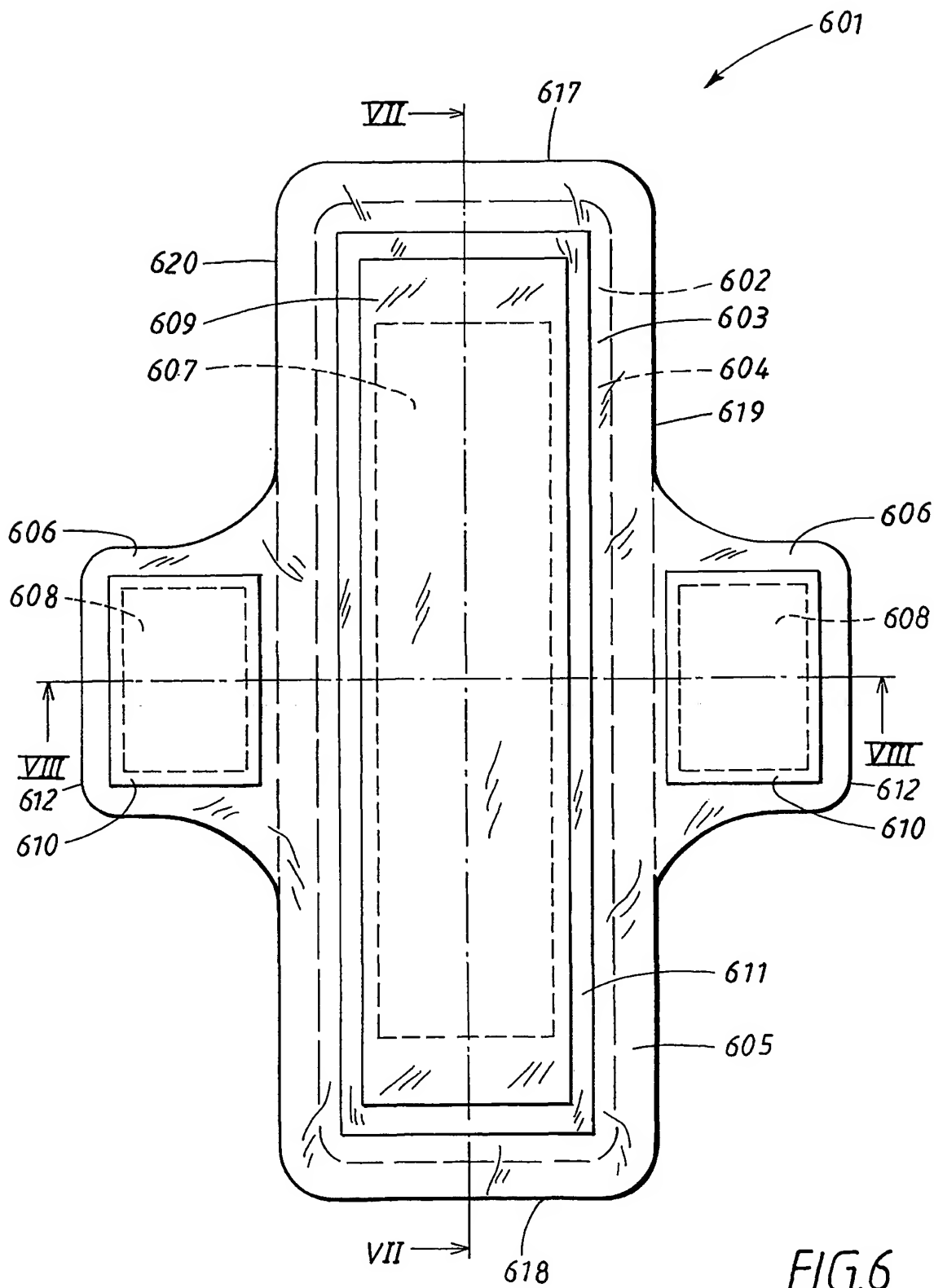


FIG. 6

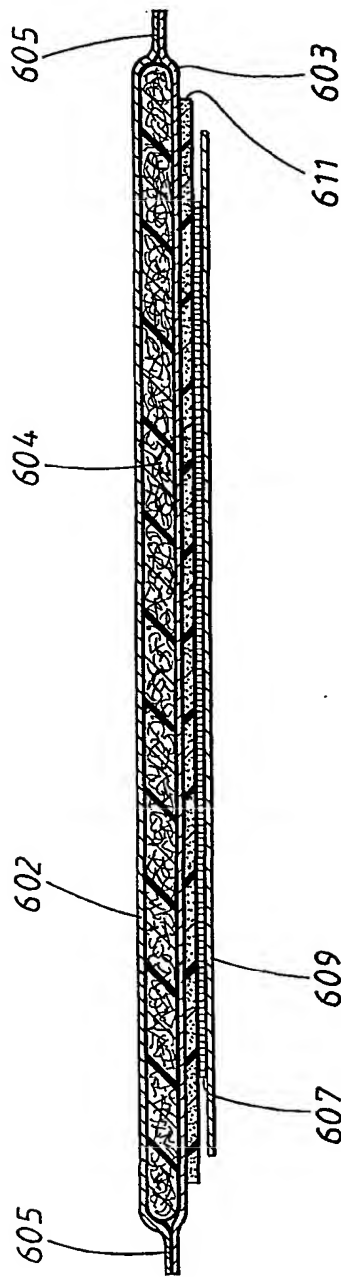


FIG. 7

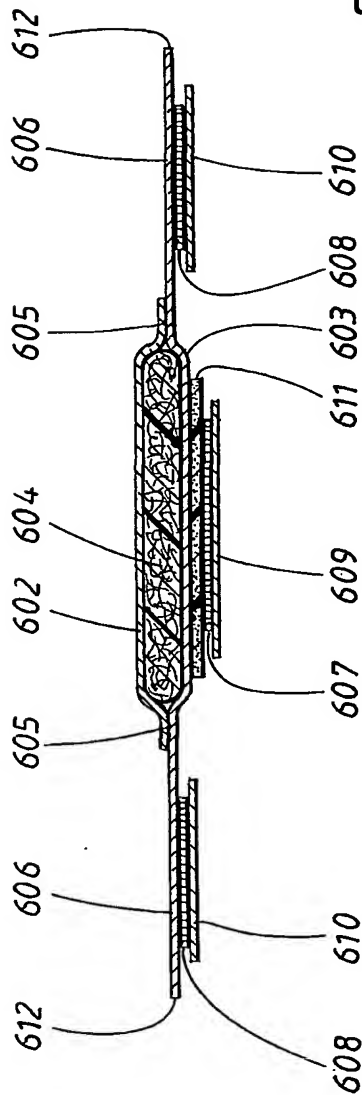


FIG. 8

6/11

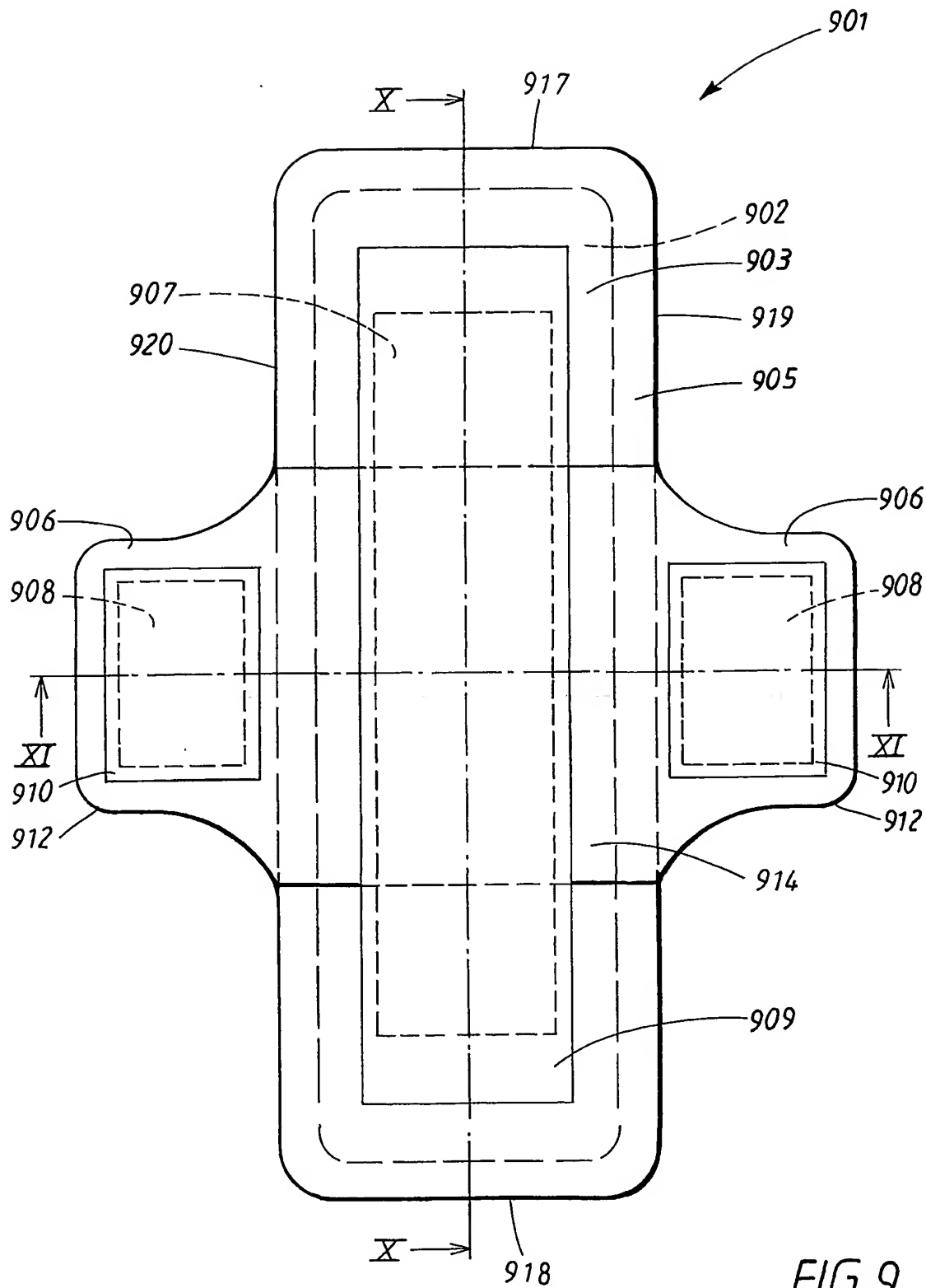


FIG. 9

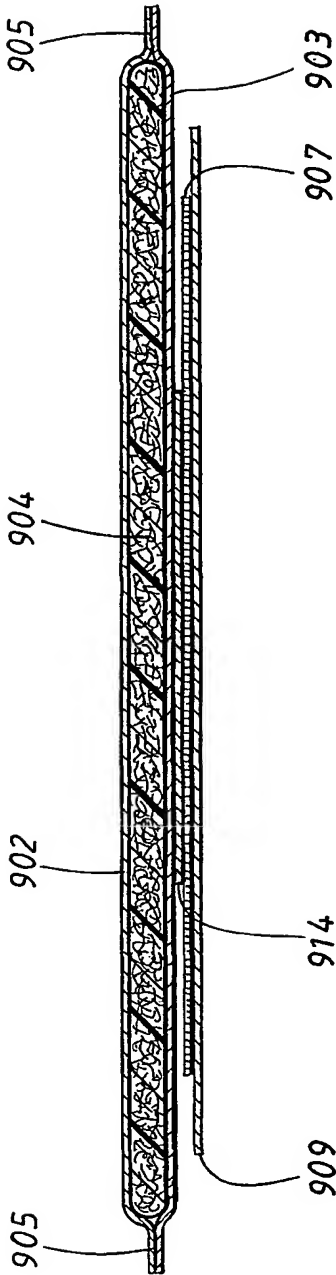


FIG. 10

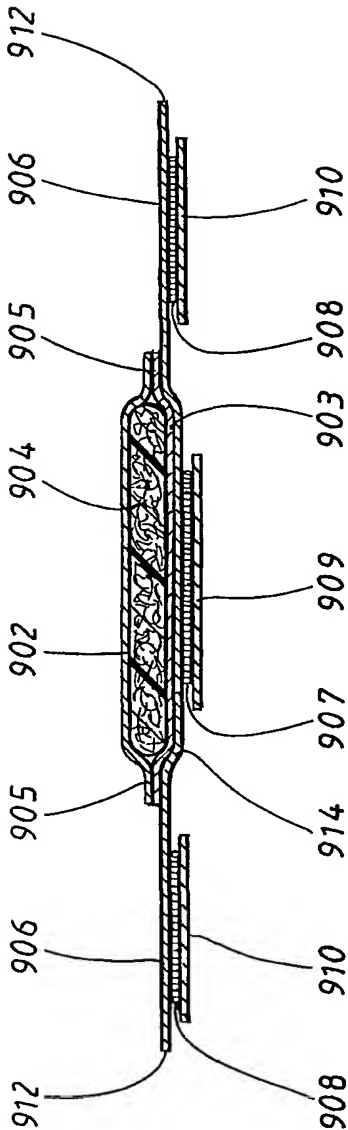
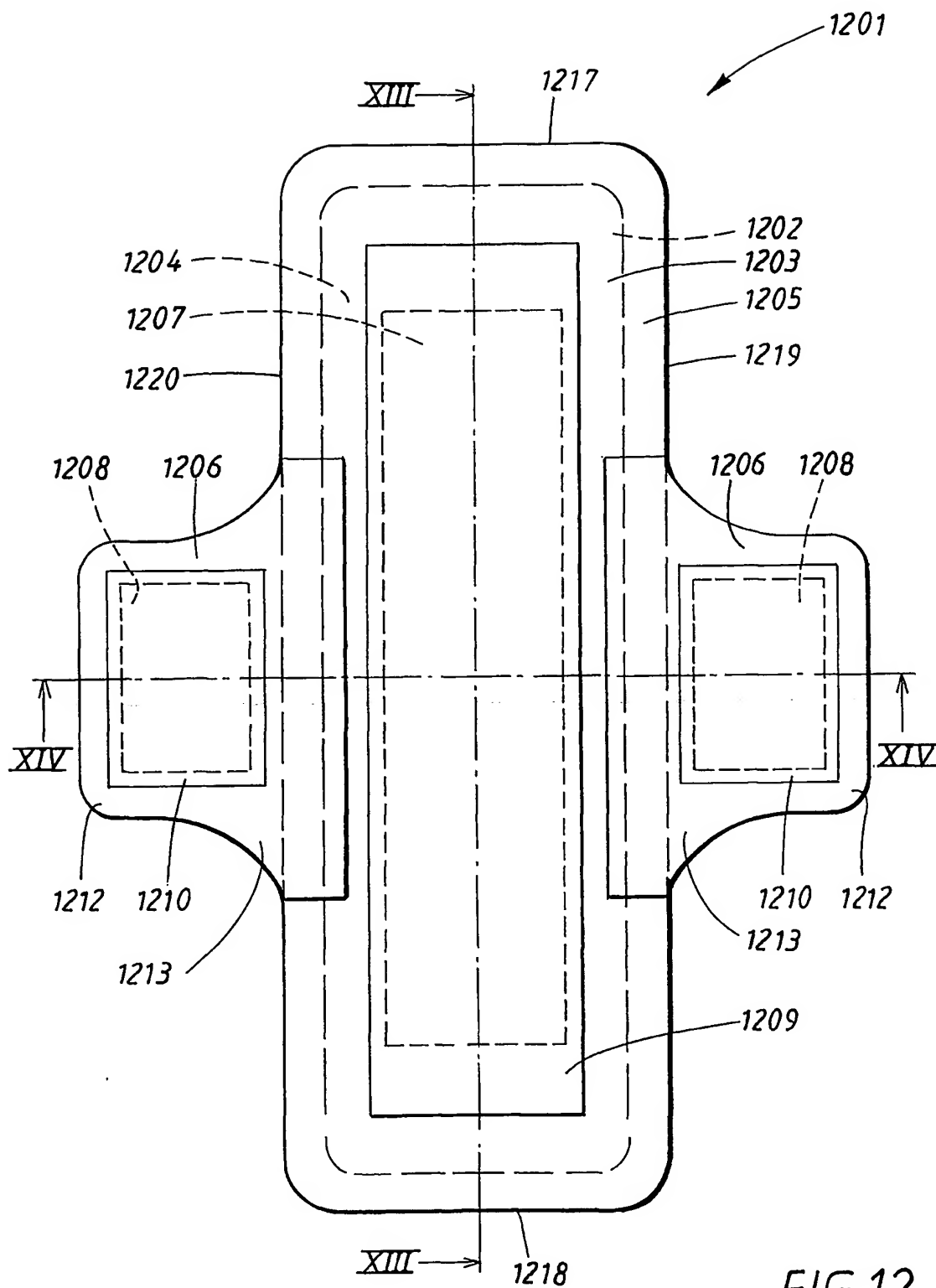


FIG. 11

8/11

FIG. 12

9/11

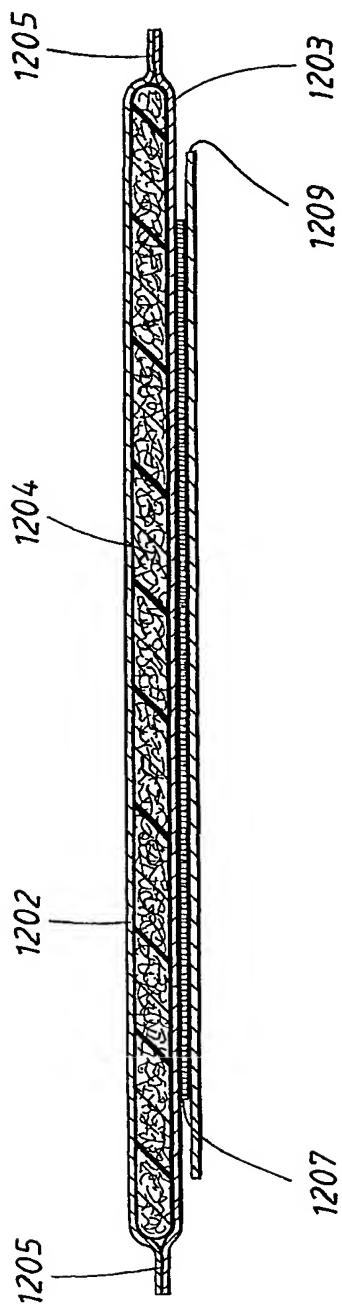


FIG. 13

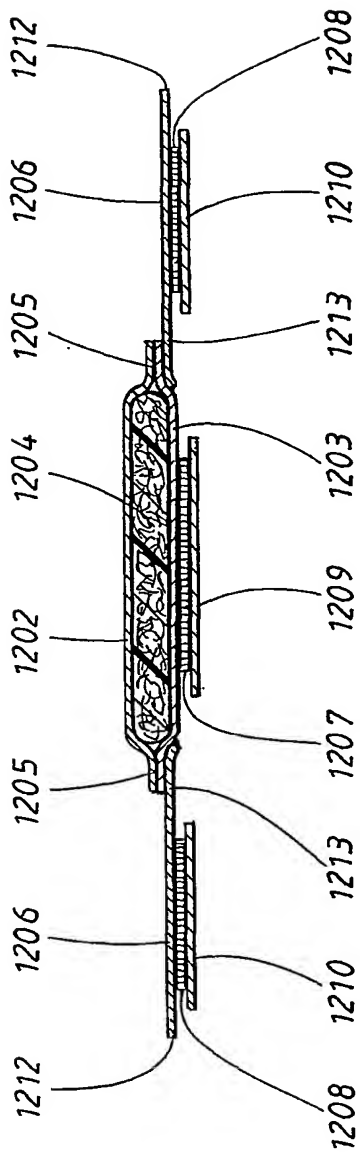
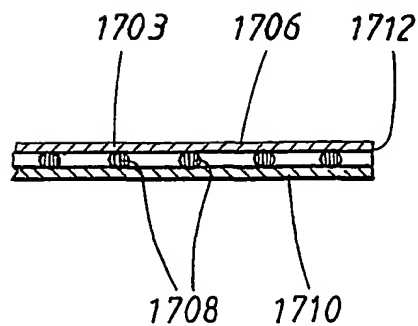
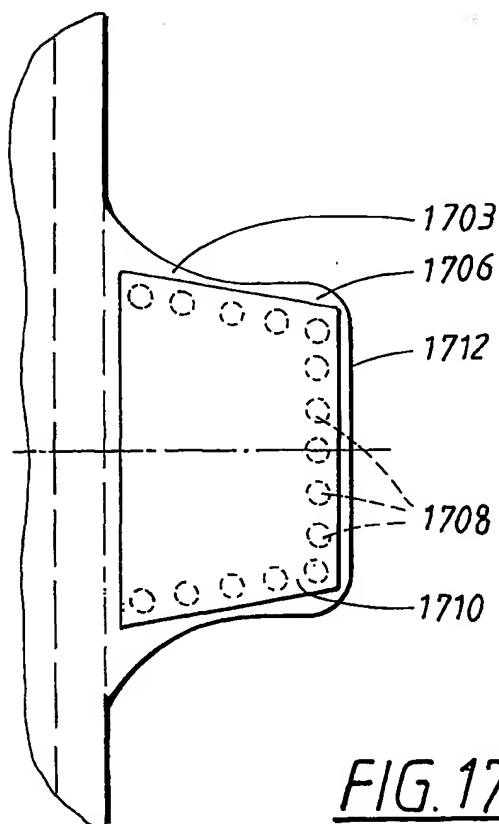
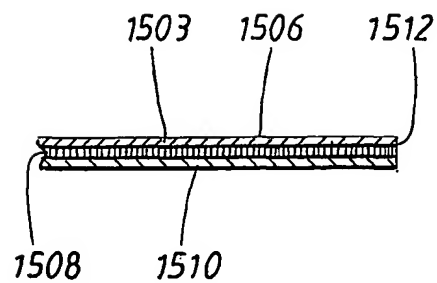
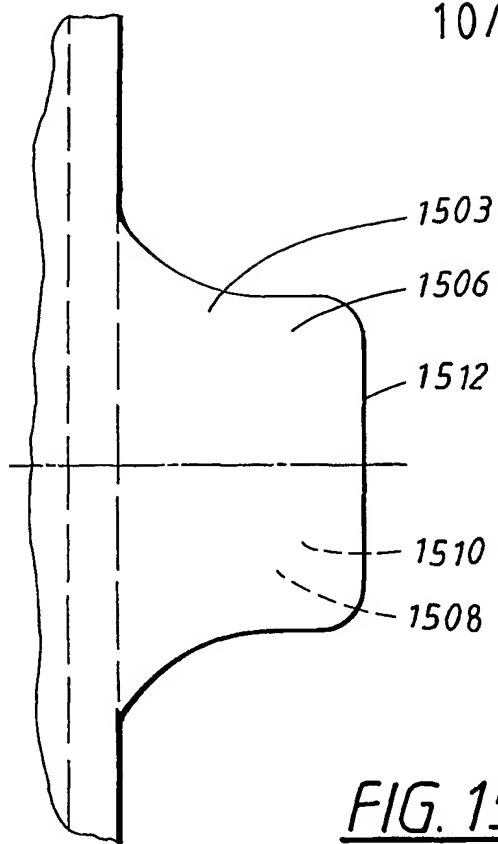


FIG. 14

10/11



11/11

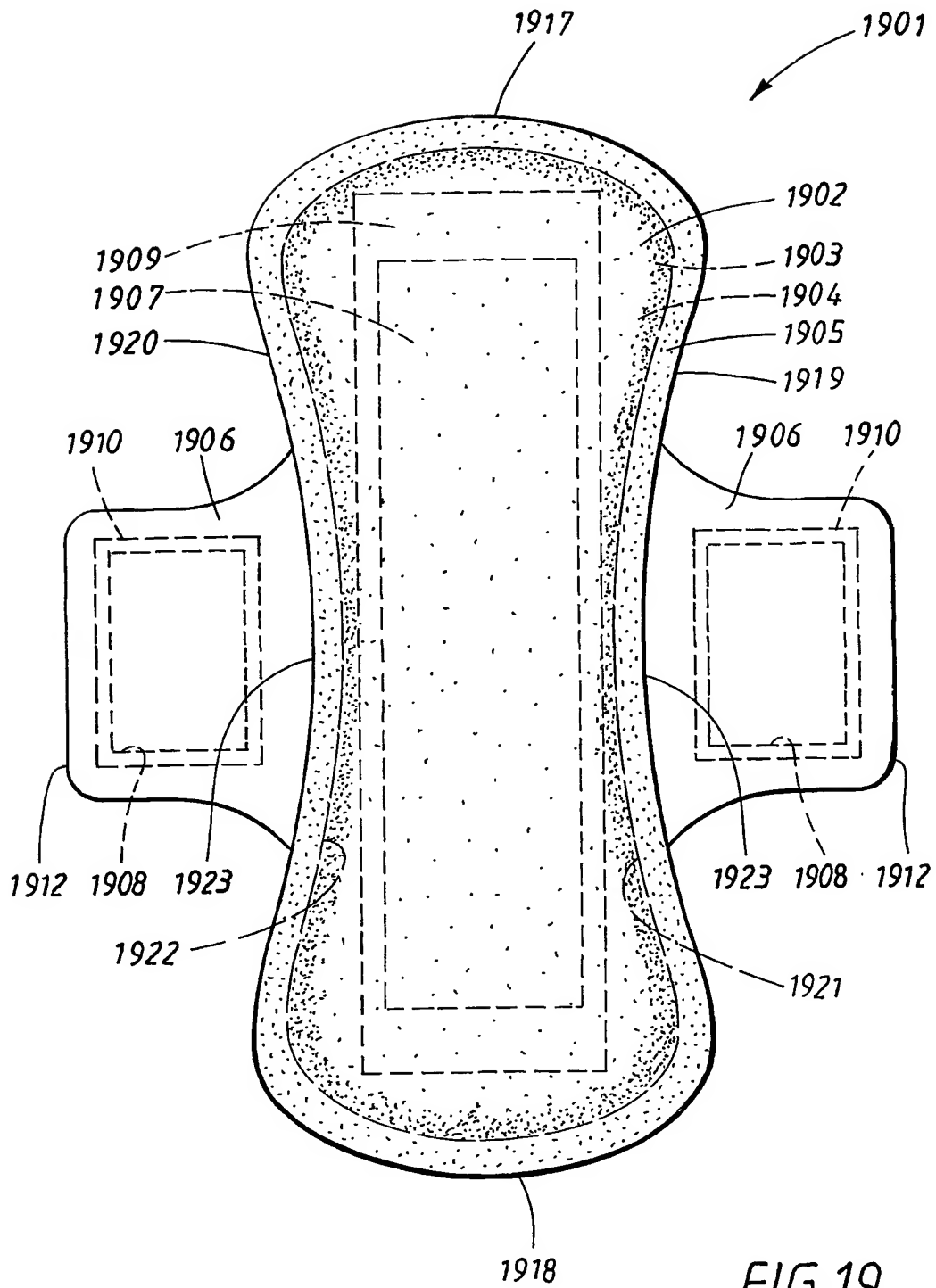


FIG. 19

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 02/00699

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61F 13/15

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DIALINDEX: ALLSCIENCE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1138293 A1 (THE PROCTER & GAMBLE COMPANY), 4 October 2001 (04.10.01), page 2, line 55 - line 56; page 3, line 19 - line 28; page 4, line 17 - line 18, page 4, line 26 - line 30; page 8, line 5 - line 7; page 8, line 13 - line 18; claims 1-5	1-10
A	--	11-13
X	EP 1078619 A2 (UNI-CHARM CORPORATION), 28 February 2001 (28.02.01), page 7, line 2 - line 3	1
A	--	2-13

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

17 June 2002

Date of mailing of the international search report

10 -07- 2002

Name and mailing address of the ISA/

Swedish Patent Office

Box 5055, S-102 42 STOCKHOLM

Facsimile No. +46 8 666 02 86

Authorized officer

Olov Jensén/ELY

Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT
Information on patent family members

01/05/02

International application No.
PCT/SE 02/00699

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
EP	1138293	A1	04/10/01	AU	4771801 A	08/10/01
				WO	0172252 A	04/10/01
EP	1078619	A2	28/02/01	AU	5363700 A	01/03/01
				BR	0003808 A	03/04/01
				CN	1286076 A	07/03/01
				JP	2001061884 A	13/03/01

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.

THIS PAGE BLANK (USPTO)